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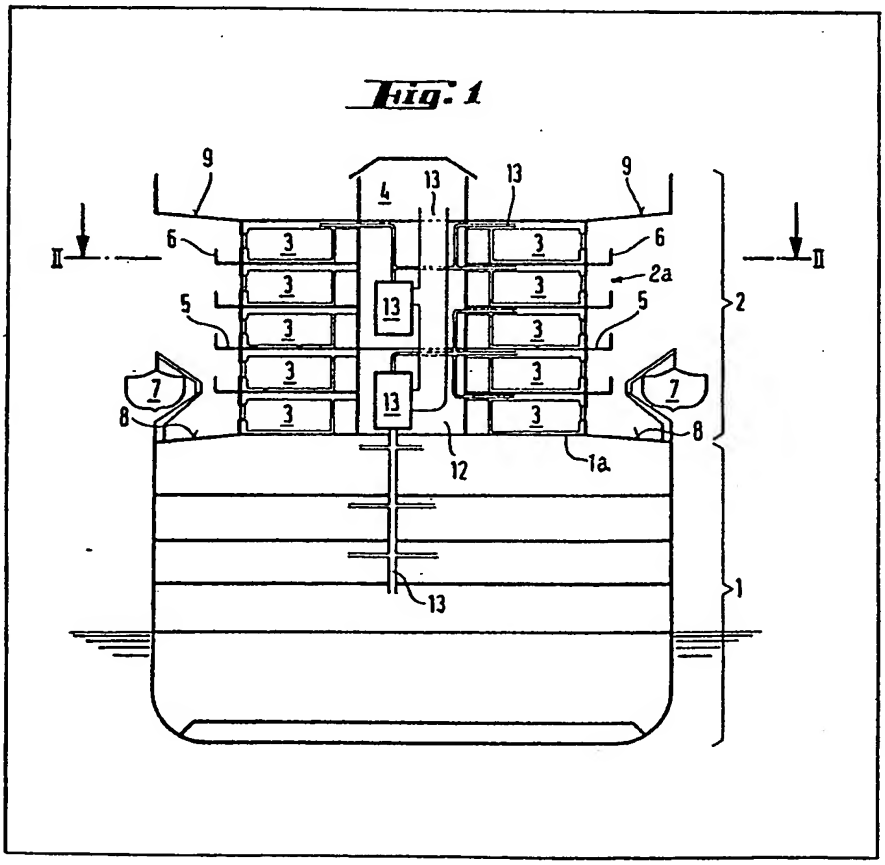
(54) **Passenger ship**

(57) A passenger ship, which comprises several hundreds of passenger cabins 3 as well as general purpose spaces and service rooms, is divided into a lower part 1 which extends up to the uppermost through-going deck 1*a* of the ship, and an upper part 2 above the part 1. The lower part is at least substantially free from passenger cabins and at least substantially all of the passenger cabins 3 are in the form of outside cabins located in a multi-deck unit 2*a* in the upper part 2 of the ship. The unit 2*a* is considerably narrower than the lower part 1 of the ship and is constructed according to the rules applicable to constructions above the uppermost through-going deck of a ship. Service, e.g. air conditioning ducts 13 are grouped in an inner area 4 separate from the individual cabins 3.



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SPECIFICATION
Passenger ship

This invention relates to a big passenger ship comprising passenger cabins as well as general purpose spaces and service rooms. In this specification, the term "big passenger ship" means a passenger ship with several hundreds of passenger cabins.

In a big passenger ship, the passenger cabins are usually so arranged that some cabins are so-called outside cabins at the sides of the ship and other cabins are inside cabins in the interior of the ship. The inside cabins cannot have any windows, and for this reason passengers are not willing to pay the same price for these cabins as for outside cabins. Attempts have been made to solve this problem by arranging all the passenger cabins as outside cabins, but then it has been necessary to place them on so many decks, that the general plan of the ship has become complicated due to the regulations for passenger spaces below and above the highest through-going deck. In addition, many passenger cabins have been placed on such low decks that they have not been attractive to the passengers for this reason. A typical example of such a ship is described in "Schiff und Hafen" vol. 9/1965, pages 727—734.

The present invention aims to solve the problem mentioned above by applying a new design principle which makes the all-over structure of the ship simpler and more economical. According to this invention, a big passenger ship comprising passenger cabins as well as general purpose spaces and service rooms, is characterised in that the ship is divided into a lower part which extends up to the uppermost through-going deck (i.e. a deck extending all over the hull of the ship) and an upper part above the lower part, in that the lower part is at least substantially free from passenger cabins, and in that at least substantially all of the passenger cabins are in the form of so-called outside cabins located in a multi-deck cabin unit in the upper part of the ship and is constructed according to the rules applicable to construction above the uppermost through-going deck. A ship in accordance with the invention has the advantage that substantially all of the passenger cabins are situated in a portion of the ship, which according to the ship-building rules is not classified as a part of the hull but as a superstructure for which other rules are applicable than for the actual hull of the ship. This gives a number of advantages, with respect to the building requirements of the cabins and also makes it much easier to arrange for the necessary passageways between the different decks of the passenger cabin unit.

The lower part of a ship in accordance with the invention forms the actual hull of the ship and has to be built according to the regulations applicable to hull structures. The invention makes it considerably easier to comply with these regulations, since the general layout is not complicated by a large number of passenger cabins. The ship shown in the publication referred to above is a good example of the difficulties arising when the passenger cabins are located some below and some above the uppermost through-going deck. This ship would not, with respect to several of its passageway arrangements, comply with the rules in force today for big passenger ships.

A ship in accordance with this invention has the advantage that all, or substantially all, of the passenger cabins are outside cabins, that is, of the type most attractive to the passengers. Because the cabins are all in a portion of the ship that can be classified as a superstructure, they can be built in a simpler way than if they were a part of the hull portion of the ship. In particular, it is convenient to make the cabins in the form of prefabricated cabin elements, which can be pushed from the outside into their intended locations. Due to the location of the cabins, the outer wall structure of the passenger cabin unit does not have to satisfy very severe requirements as regards strength, wave impact endurance etc. The arrangement of the cabin unit in a ship in accordance with the invention also has a favourable influence on the stability of a ship, because the centre of gravity of the ship will be at a lower level than in conventional ships. Also, balconies and/or walkways can be provided outside the cabins, the windows of the cabins can be made large, because they are sheltered from heavy wave impacts, and life boats can be located at a lower level than in conventional ships.

The best place for the life boats of the ship is outside the passenger cabin unit at its lowermost deck. For practical reasons, the support system of the life boats requires some space in the vertical direction, so that the life boats will in practice be situated approximately at the level of the first deck above the lowermost deck of the passenger cabin unit. At this level the life boats will obscure the outlook from the passenger cabins as little as possible.

In a particularly advantageous embodiment of the ship in accordance with the invention, technical equipment, for example water and sewer pipes, air conditioning ducts and electrical cables, and passageways, for example stairs and elevators, can be arranged between port and starboard rows of outside passenger cabins, for example in a through-going central vertical space. With such an arrangement, the total length of all tubing, wiring etc. can be kept at a minimum. Such an arrangement also makes it possible to reduce the length and number of horizontal tube duct portions, so that the vertical distance between the decks in the passenger cabin unit can be reduced. Furthermore, by separating all the technical equipment from the passenger cabins and locating it in a central vertical space of the cabin unit, the noise produced by use of the equipment will not disturb the occupants of the passenger cabins.

It is of advantage to place, above the narrow passenger cabin units, a light broad structure, for

instance a sun deck or the like. This improves the appearance of the ship and also forms a shelter for the passenger cabins against the sun as well as sheltering any balconies of the passenger cabins against rain.

The invention will now be described, by way of example, with reference to the accompanying drawing, in which

Figure 1 is a schematic cross-sectional view of one embodiment of a ship in accordance with the invention, taken on the line I—I of Figure 2, and

Figure 2 is a sectional plan, on a reduced scale, taken on the line II—II of Figure 1.

In the big passenger ship shown in the drawing, the reference numeral 1 generally designates the lower part of the ship and the numeral 2 its narrower upper part. The broad lower part 1, which extends up to the uppermost through-going deck 1*a*, forms the hull of the ship and the narrower upper part 2 is a superstructure which includes a multi-deck passenger cabin unit, generally designated by the numeral 2*a*, in which passenger cabins 3 are located. In the unit 2*a* the cabins 3 are arranged in two sets, each consisting of five superimposed rows of the cabins 3, the two sets being located in the port and starboard sections respectively, of the ship.

All general purpose spaces such as an entrance hall, a shopping area, an exposition area, restaurants and show rooms, crew cabins and store rooms as well as the driving machinery, necessary auxiliary machinery, fuel and water tanks etc. are located in the lower part 1 of the ship. The location of all these general purpose spaces in the hull portion of the ship and their complete separation from the passenger cabin unit 2*a* gives short passageways, effective function and a peaceful atmosphere in the passenger cabins 3.

In the middle of the narrow passenger cabin unit 2*a*, there will usually be free space available and it is then advantageous to form a vertical through-going duct 4 in this free space, in which may be located passageways and transport means, such as stairs 10 and elevators 11, working and store rooms for servicing the cabins and necessary tubes and ducts, for instance large air-conditioning ducts 13. The vertical duct 4 can extend downwards below the passenger cabin unit 2*a*, if so desired. In the longitudinal direction of the ship, the duct 4 can be as long as the passenger cabin unit 2*a*, but it may also be shorter.

All the passenger cabins 3 can be of identical construction, which is an important advantage with respect to production technology. The hull of the ship, that is, the lower part of the ship can be built quite indepedently of the passenger cabins, which can be made in the form of module units, which are pushed from the sides into their proper places in the framework of the passenger cabin unit 2*a*. This also means that a passenger cabin, which for instance has been destroyed by fire, can quickly be replaced by another cabin.

At the outside of at least some of the cabins 3 there may be a balcony 5 with a rail 6, so constructed that it will not be an obstacle when a cabin is installed or replaced. The balconies 5 can be separate for each cabin or they can be joined in the longitudinal direction of the ship to form walkways. The arrangement of balconies and/or walkways can be different at the different decks of the cabin unit 2*a*.

The life boats 7 of the ship can be arranged outside the narrow passenger cabin unit 2*a*. As shown in Figure 1, the life boats can with advantage be arranged approximately at the level of the deck of the cabin unit 2*a* which is situated between the lowermost rows of cabins and the rows above. With this arrangement it is suitable to arrange, outside the lowermost rows of passenger cabins, a walkway 8 extending in the longitudinal direction of the ship, and to provide the cabins of the higher rows with balconies 5.

At the top of the narrow passenger cabin unit 2*a*, a light broad unit can be arranged, for instance, a sun deck construction 9. In this unit there may be located the rooms of the ship's officers, swimming pools, a so-called sky bar etc.

CLAIMS

1. A big passenger ship comprising passenger cabins as well as general purpose spaces and service rooms, characterised in that the ship is divided into a lower part which extends up to the uppermost through-going deck of the ship, and an upper part above the lower part, in that the lower part is at least substantially free from passenger cabins, and in that at least substantially all of the passenger cabins are in the form of so-called outside cabins located in a multi-deck cabin unit in the upper part of the ship, which unit is considerably narrower than the lower part of the ship and is constructed according to the rules applicable to constructions above the uppermost through-going deck.

2. A ship according to claim 1, in which at least some of said passenger cabins are provided, at the outside thereof, with a balcony.

3. A ship according to claims 1 and 2, in which, outside at least some of said passenger cabins, there is provided a walkway extending in the longitudinal direction of the ship.

4. A ship according to any of claims 1 to 3 in which life boats of the ship are arranged in spaces outside said cabin unit.

5. A ship according to any of the preceding claims, in which in a central portion of said cabin unit, there is a vertical space, in which passageways and technical equipment are arranged.

6. A ship according to any of the preceding

claims, in which at the top of said cabin unit, there is a broader light construction.

7. A ship according to claim 6, in which said broader light construction comprises a sun-deck.

8. A big passenger ship constructed and arranged substantially as herein described with reference to, and as illustrated in, the accompanying drawing.

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Fig. 1

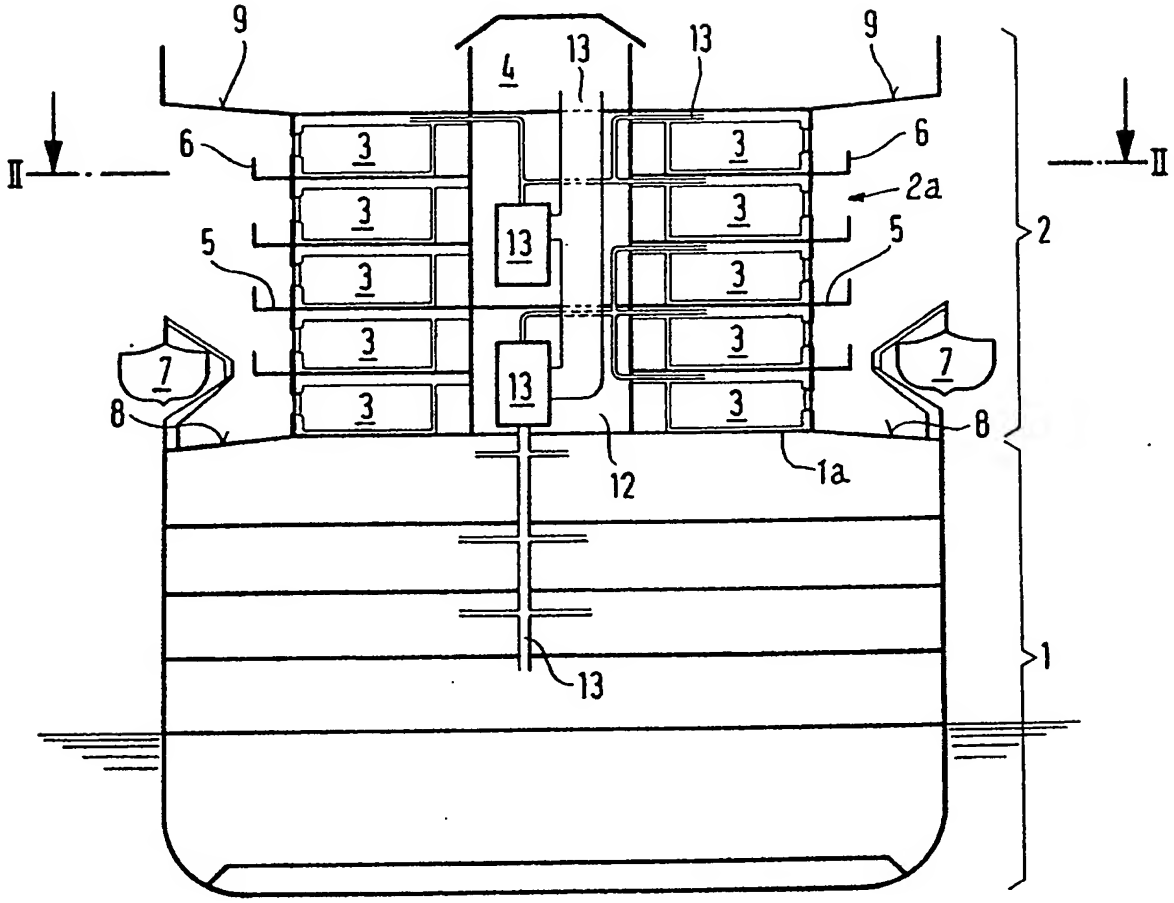
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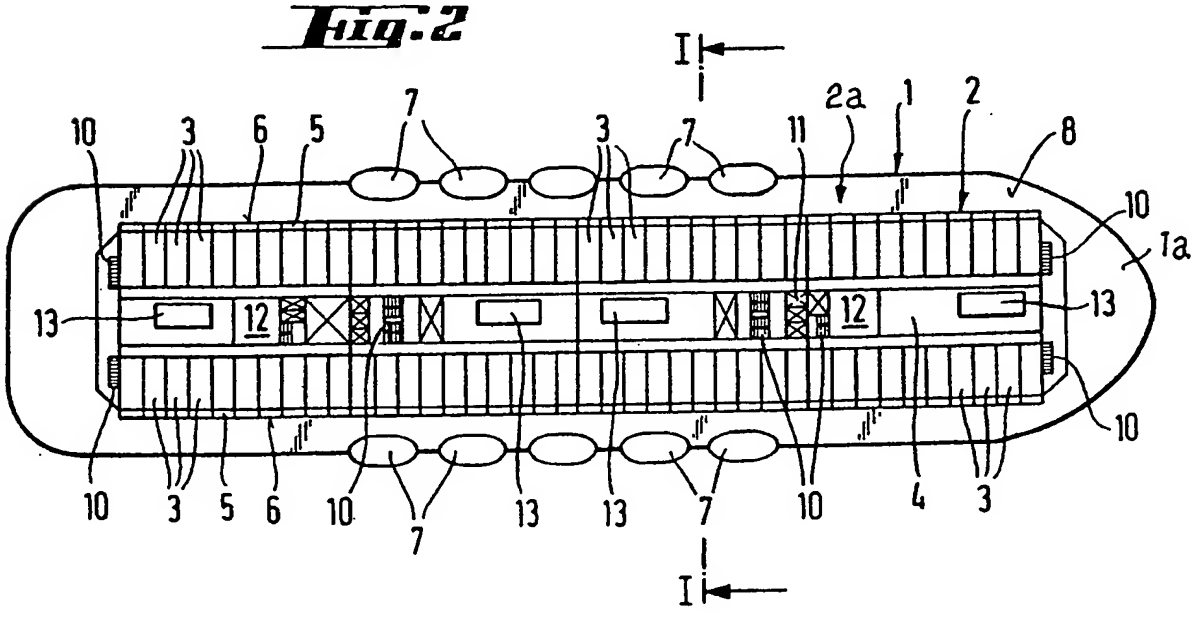
Fig. 2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